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ABSTRACT

This paper surveys the literature on ways to use Web-based or Internet instruction more effectively and assesses some trends associated with the methods. Highlights include: changes in university demographics; elements of a process of planning and operating educational programs for adult students; major faculty issues that have to be addressed in order to grow and improve the instructional delivery of Web-based courses; the application of critical thinking skills in teaching, learning in, and designing Web-based courses; collaborative learning as a means of students learning to value and perceive the importance of working actively with their peers and an interdependent structure; how WebCT software can be modified for specific classroom setups and needs; challenges associated with the trends in Web-based instructional models; and the influence of the diversity of the student population and the development of educational technology on the need and popularity of Web-based instruction. (MES)

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A SURVEY OF THE LITERATURE ON WAYS TO USE WEB-BASED AND INTERNET INSTRUCTION MOST EFFECTIVELY

Curriculum and Program Planning

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INTRODUCTION

This paper surveys the literature on ways to use Web-based or Internet instruction more effectively and assess some trends associated with the methods. Universities have increased the use of Web-based instruction to augment student demographics, drawing larger, more diverse student audiences to the individual institution.

BACKGROUND

According to Xiaoshi Bi's article, university demographics are changing. People are pursuing degrees later in life and over longer periods, assembling them out of one course here and a few credit hours there, snatched between jobs and bank loans, as time, money, interest and opportunity arise (Bi, 2000, p.38). Further, Bi continues to explore the notion that it is not technology that will cause the changes in the way higher education degrees are offered but rather technology will be very important in the accommodation of an already changing system (Bi, 2000, p.38). In David Levin's report, he affirms that there is a wave as more colleges and universities move into the distance education arena. He explains that

> in an attempt to attract "non-traditional" students, many institutions try to offer education to them at times and locations convenient to the learner. This has meant increasing evening and weekend offerings, opening branch campuses and finally, distance learning. The newest wave of distance learning – computer and Internet based courses – offers the ultimate in education at times and locations convenient to the learning (Levin, 1997, p.3).

Adult students typically demand innovative ways to attain educational objectives. However, it is also imperative for institutions of higher learning to evaluate and synthesize the contributions of Malcom Knowles' andragogical process of planning and operating educational programs for adult students. Knowles maintains that the process consists of seven elements: (1) the establishment of a climate conducive to adult learning, (2) the creation of an organizational

structure for participative learning, (3) the diagnosis of needs for learning, (4) the formulation of directions of learning objectives, (5) the development of a design of activities, (6) the operation of the activities, and (7) the re-diagnosis of needs for learning and evaluation (Rossman, 2000, p.5). Web-based instruction can have negative impacts. Working with adult students at Old Dominion University's Northern Virginia Center, there are numerous cases where adult students take asynchronous Internet classes, but in the end, the student questions whether he or she is really getting the best return on investment, whether he or she is learning and achieving academically.

STRATEGIES

In Chizmar and William's report, the statement that impacts instructional strategies is that pedagogy drives technology (Chizmar & Williams, 1999, p.2). This unfolds a series of approaches for designing and improving instruction. Faculty have clear expectations and based on the results of a survey conducted at Illinois State University by Chizmar and Williams, they identified five major faculty issues that have to be addressed in order to grow and improve the instructional delivery of Web-based courses.

1. Faculty want instructional technology that is driven by pedagogical goals. Faculty want to use technology effectively to reach new audiences or to reach traditional audiences in new ways.
2. Faculty desire Web-based tools that are designed for a specific pedagogical task as opposed to a "Swiss-Army knife" Web-tool that is designed for many tasks. Faculty want to be able to turn to technical experts when they need help in developing a Web-based application that would require technical expertise that is beyond what should be expected based on the traditional cost/benefit ration of faculty time.
3. Faculty desire to interact and compare notes with peers on campus who are involved in instructional technology at a comparable level.

4. Faculty desire technical support and network services that are reliable and fast enough to run sophisticated applications efficiently without frustrating students and faculty.
5. Faculty desire some recognition, both monetary and non-monetary, for developing and using instructional technology in their classrooms (Chizmar & Williams, 1999, p.2).

Considerations must be given to the conditions affecting learning, which are of central importance in Web-based educational environments and models. According to Bi's research, almost all interviewees discussed the process of applying critical thinking skills in teaching, learning and designing Web-based courses. Critical thinking skills provide to online distance students the capability in problem solving: to instructors making the instructional process tailored to distance student needs, and to course designers the selection of interactive instructional technology most appropriate for the learning situation (Bi, 2000, p.40).

As indicated by the report, *Collaborative learning in Web-based instruction*, the authors discuss collaborative learning as a means of students learning to value and perceive the importance of working actively with their peers and an interdependent structure.

> Students think and act in ways that promote their own learning and that of others. Collaborative learning is enhanced when students are fully engaged in the activities of the class, are engaged with each other and the subject matter and take risks (Comeaux, Huber, Kasprzak, Nixon, 1998, p3).

The importance of integrating the student element with the Web-based instruction is critical, especially when focused on adult students. Technology is a tool that can be used to enhance and augment levels of communication and learning, to facilitate collaborative learning activities.

Various software packages that are popular with Web-based curricula include WebCT and Blackboard. Comeaux's report provides an example of how WebCT can be modified for specific classroom setups and needs:

1. Assignment page with professor introductions to lessons

2. Chat rooms divided into password protected "study groups" for students to synchronously discuss activities
3. Bulletin board with password protected "study groups" for students to synchronously discuss activities, material etc, for others in the group. This included "hot links' to relevant we sites and on-line materials
4. Presentation area, a general posting area for all final group work products to be posted for all classmates to read and comment upon if desired or required by the professor
5. Microsoft NetMeeting or CU-See Me software for synchronous video and voice streaming discussions/communication
6. E-mail messages and attachments
7. Library reserves and electronic research
8. Fax
9. Telephone
10. "Snail mail" (Comeaux et al., 1998, p.5).

In Krueger's study, Convene software is evaluated as top-rate because the communication process, which enabled by the software, is asynchronous and requires only a modem-equipped PC (Krueger, Porter, Burke, 1998, p. 203). The software component possibilities are overwhelming and it may be advisable for universities to create a forum to demonstrate the various capabilities, tailoring to specific pedagogical concerns of presenting, interacting, guiding and exploring.

TRENDS AND ANALYSIS

Old Dominion University's Northern Virginia Center caters to the adult student. The integration of asynchronous courses with synchronous components has become more critical to remain on the cutting edge. The students completing Web courses tend to wear and juggle a variety of hats, careers, family, and need to have strong link to the faculty member. In addition, the student services support structure is critical. Handbooks, syllabi, course materials, lecture notes, policies and procedures, reference materials, and library services are mechanisms to support the student's experience. Institutions modeling and supporting Web-based instruction realize and actualize the hi-tech, hi-touch nature of the strategy.

The various trends associated with web-based instructional models also denote specific challenges: (1) having the appropriate resources of hardware and software, (2) training and maintaining key personnel that know and understanding the tools, (3) defining access and addressing the elements of the digital divide, (4) engaging faculty and providing training to both faculty and students, and (5) implementing instructional design appropriate for Web-based courses. Therefore, web course design is specifically tailored for the distance learners.

The instructors should know, understand and consider the characteristics of the student population – who are they, what they are good at, how subject content is delivered to them and why the course is being delivered in a certain way. Design must also include phases that are immediate and long-range to support future semesters and maximizes the investments on the faculty member's time, the course developers and the institution. A systematic approach should be made toward the instruction, but it should still represent uniqueness of the professor. Ultimately, the designing of the instruction, and therefore the inclusion of the instructional strategy and delivery mode, must be based upon the knowledge of how the distance student is going to learn. This means teaching strategies and delivery technology serve the needs of distance students and the purpose of content delivery instead of distance students having to accommodate the "fancy features" just for the sake of using the cutting-edge technology (Bi, 200, p. 40).

CONCLUSION

The diversity of the student population and the development of educational technology influence the need and popularity of Web-based instruction. The success of Web-based instruction involves the student's understanding and perception of expectations, the faculty's

desire to embrace the delivery and learning strategies, the course designers support and cooperation, and the comprehensive vision of the administration to synchronize these elements.

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